Los Angeles County Department of Mental Health

Test Authorization and Quality Assurance Section
Bureau of Standards, Practices, and Conduct
213-738-2415

REFERRING CHILDREN FOR NEUROPSYCHOLOGICAL TESTING

A) A) Purpose of Neuropsychological Testing:

The aims of the neuropsychological examination are to draw inferences about the global functioning of the cerebral hemispheres, specify the adaptive strengths and weaknesses of the child (including formulating a profile of cognitive ability, sensorimotor functions, and affective reactions), and plan an appropriate rehabilitation. An adequate assessment of brain-behavior relationships requires a thorough developmental history, reports from parents and teachers, and the administration of several tests, as no single test can adequately assess the behavioral effects of widely variable cerebral lesions or other causes of cerebral impairment.

Neuropsychological assessment of children differs from that of adults. First, very young children have difficulty reporting their symptoms because their language ability has not yet fully developed. Thus, parents or other caregivers must be relied on for information about children's functioning. Second, environmental factors – particularly those related to the family – play a significant role in shaping outcomes. Third, in cases of early brain injury, it is difficult to evaluate children's premorbid levels of functioning. Fourth, deficits may be "silent" until later in life. Finally, it is sometimes difficult to distinguish between developmental delays and deficits in performance. (pp 419-420) [Sattler, J. (2001). *Assessment of children: Behavioral and clinical applications* (4th ed.). San Diego: Author.]

It is because neuropsychological assessment of children differs from that of adults that Lezak offers this footnote in her text *Neuropsychological Assessment*:

The assessment of children and the consideration of brain disorders presenting prior to maturity have their own conceptual framework, methods, and data, which are outside the scope of this book. (p 7)
[Lezak, M. D. (1995). *Neuropsychological assessment* (3rd ed.). New York: Oxford University Press.]

B) B) Basic Assumptions in Neuropsychological Assessment:

Bernstein in her chapter Developmental Neuropsychological Assessment writes:

The premise underlying the present discussion is that advances in our understanding of the relationship between brain and behavior in the child oblige clinicians to scrutinize their diagnostic and prescriptive thinking and mandate a complementary update in clinical methods. Currently, the most salient "missing element" in the practice of assessment in pediatric neuropsychology remains that of the integration

> of *development* . . . Development is not a backdrop to the organism; it defines the organism in its current state. (pp 405-406)

In the discussion that follows, Bernstein, like Sattler, points out that development cannot be understood without also understanding the role of the two major variables with which development interacts; brain and context. [Bernstein, J. H. Developmental Neuropsychological Assessment (1999). In K. O. Yeates, M. D. Ris, M. D., & J. G. Taylor. (Eds.), *Pediatric Neuropsychology: Research, theory and practice.(* pp. 405-456). New York: Guilford.]

C) C) Indications for Referral for Neuropsychological Testing:

A recommendation for neuropsychological testing will typically require a medical history that is associated with central nervous system trauma or deficit (e.g., a history of accident, injury, illness, or, disease), or, the presence of patterns of readily observable behavior such as a learning disability or other day-to-day behaviors that are consistent with central nervous system impairment.

- As learning disabilities may also be due to intellectual, sensory, or health factors, children who have difficulty learning in school must first be evaluated by their school district to determine their eligibility for special education.

- Although a general psychological examination may be helpful to the school in determining the nature of the child's learning difficulty, in the absence of medical or other history as described above, a neuropsychological examination is rarely indicated.

- Children who show symptoms of attention-deficit disorder are best screened for this diagnosis using standardized norm-referenced tests that are based on the two-criterion set of the DSM-IV: inattention and hyperactivity

These views are consistent with the approach taken by Ryan et al. (1998) in their chapter General assessment issues for a pediatric population. [Ryan, C. M., Hammond, K., & Beers, S. R. (1998). General assessment issues for a pediatric population. In Snyder, P. J., & Nussbaum, P. D. (Eds.). *Clinical neuropsychology: A pocket handbook for assessment* (pp. 105-123). Washington, D.C.: American Psychological Association.]

And, by Bengston and Boll (2001) in their chapter Neuropsychological assessment of the child who write:

> Referral for pediatric neuropsychological assessment can result from numerous different presenting questions and concerns. Commonly, children are referred for neuropsychological assessment secondary to known or suspected organic disease with potential neurocognitive sequelae. At other times, children are referred when skills deteriorate or fail to develop at age-appropriate rates. Referral for neuropsychological

evaluation is often made when children exhibit complex learning or behavioral problems. (p. 152) [Bengtson, M. L., & Boll, T. J. Neuropsychological assessment of the child (2001). In C. E. Walker, & M. C. Roberts, (Eds.), *Handbook of clinical child psychology* (3rd ed., pp. 151-171). New York: Wiley.]

It is important to remember that the problems defined above may be a product of known or suspected physical abuse or severe nutritional deficiencies. In any case, neuropsychological testing is always administered in an identifiable historical or behavioral context to answer specific referral question(s). These may devolve from other diagnostic test procedures such as a general psychological examination, or, they may evolve from less specific but equally important concerns about the patient's functional competence. Regardless, the procedure is of small value if the results are not explained in terms that are beneficial to the treatment of the patient. Bengston and Boll write:

> Little service is provided to a patient if the assessment documents brain damage but fails to help the patient in understanding, clarification, and recommendation for changes or assistance to improve on the quality of daily living as compared to preevaluation levels. Determination of deficiencies needs to be of value to the patient clinically. (p151-152) *[op. cit.]*

Sattler adds:

> Neuropsychological assessment has shifted from assisting in the diagnosis of cerebral damage to assisting in the assessment of the functional capacities of children with brain injuries and the development of rehabilitation programs to help them develop better adaptive capacities and make better progress in school. (p 420) *[op. cit.]*

For these reasons, the value of the neuropsychological assessment is only as good as the treatment recommendations that flow from its results.

D) D) Using Psychological Tests as Referral Criteria:

Often referrals for neuropsychological testing are based on the child's performance on a single test such as a Wechsler test of intelligence (WAIS-III, WISC-III or WPPSI-III) or a test of visual-motor perceptual functioning such as the Bender-Gestalt.

Regarding a referral based on a single test whether the WISC-III, the Bender-Gestalt or other instrument, Sattler writes,

> . . . no single test can adequately assess the behavioral effects of widely variable cerebral lesions or other causes of cerebral impairment. (p 419) *[op. cit.]*

See also Lezak's discussion as to how the concepts "brain damage" and "organicity" lack etiological implications (pp 18-19 *op.cit.*) and the foolishness – Lezak's term – of

using single "tests of organicity" to identify the presence of brain damage. (p 163) *[op. cit.]*

Regarding the more contentious issue of the validity of 1) Wechsler factor scores, 2) Verbal IQ versus Performance IQ scale differences, and, 3) Wechsler subtest profiles, as signs of central nervous system dysfunction that require further evaluation via neuropsychological testing, Kaufman and others point out that the presence of these Wechsler factor scores, scale or subtest profile differences by themselves are *never* sufficient to justify a referral for neuropsychological testing. They should, however, trigger the clinician's curiosity about other historical, medical or behavioral variables, which, when taken in the context of these kinds of test results might point to a need for neuropsychological testing. Kaufman writes:

> One conclusion is warranted from the child and adult clinical and neuropsychological literature: **V-P IQ or VC-PO Index discrepancies should not be used to infer neurological dysfunction or psychopathology. They may be used as additional support for such hypotheses in the presence of convincing evidence** from supplementary test data, psychiatric and clinical observations, neurological and neuropsychological evaluation, and consideration of base-rate tables of verbal-nonverbal differences. [Emphasis added] (pp. 149-150) [Kaufman, A. (1994). *Intelligent testing with the WISC-III.* New York: Wiley.]

Similarly, Hynd et al., (1998) in their chapter Neuropsychological basis of intelligence and the WISC-III write:

> In summary, research has not supported the validity of reliance on VIQ-PIQ discrepancies for clinical purposes with the WISC-R. With regard to diagnosis or classification, it has been argued that reliance solely on the presence of a specific VIQ-PIQ discrepancy on the WISC-III is of no value and may result in misclassification.
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> . . . **Thus, although a VIQ-PIQ discrepancy may be used for hypothesis generation, the presence or absence of such a discrepancy should not be viewed as conclusive evidence for the presence or absence of a disability.** [Emphasis added] (p. 207) [Hynd, G. W., Cohen, M. J., Riccio, C. A., & Arceneaux, J. M. (1998). Neuropsychological basis of intelligence and the WISC-III. In A. Prifitera & D. Saklofske (Eds.). *WISC-III clinical use and interpretation: Scientist-practitioner perspectives* (pp. 203-226) New York: Academic Press.]

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